

1 This listing of claims will replace all prior versions, and listings, of claims
2 in the application.

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4 **Listing of Claims:**

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6 Claim 1 (Currently amended): A method of synchronizing asynchronous
7 time-based and motion capture data in a system in which the time-based data and
8 the motion capture data are transmitted by a server over a network to a client, the
9 method comprising:

10 retrieving a time-based data stream and a motion capture data stream at the
11 server, each stream comprising frames of data;

12 variably buffering one of the time-based data stream and the motion capture
13 data stream at the server to produce two streams having synchronized frames;

14 ~~multicasting~~ receiving separately the two streams at the client; and

15 using the synchronized frames at the client for playback of synchronized
16 motion capture data and time-based data to a user.

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18 Claim 2 (Cancelled)

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20 Claim 3 (Previously presented): The method of claim 1 further including
21 calculating a difference between delays for the motion capture data stream and the
22 time-based data stream through the server to determine an amount of variable
23 buffering for a faster of the two streams.

1 Claim 4 (Original): The method of claim 1 further including transferring
2 only those data values for a frame that have changed since a last frame was
3 transmitted.

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5 Claim 5 (Original): The method of claim 1 wherein the network is the
6 Internet.

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8 Claim 6 (Previously presented): The method of claim 1 wherein the
9 motion capture data is mapped to control the movement of a virtual figure
10 displayed in a scene at the client.

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12 Claim 7 (Previously presented): The method of claim 1 wherein the
13 motion capture data is generated by a body suit.

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15 Claim 8 (Previously presented): The method of claim 1 wherein the
16 motion capture data includes background data for use in producing a scene at the
17 server.

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19 Claim 9 (Previously presented): The method of claim 1 wherein data
20 transfer from the server to the client is concurrent with the receipt of the time-
21 based data stream and motion capture data stream at the server.

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23 Claim 10 (Original): The method of claim 1 wherein the time-based data is
24 voice data.

1 Claim 11 (Original): The method of claim 1 wherein the synchronized data
2 frames include one or more data channels, the server transmitting on the network
3 at a predetermined interval between synchronized data frames a descriptor packet
4 which describes each channel contained in the synchronized data frames such that
5 a client may join in progress a multicast of synchronized data frames.

6
7 Claim 12 (Previously presented): The method of claim 1 wherein the time-
8 based data is a pre-recorded audio track and the method further includes
9 synchronizing playback of the pre-recorded audio track at the server and buffering
10 of the pre-recorded audio track to allow for coupling with motion capture data
11 generated in time with the playback of the pre-recorded audio track.

12
13 Claim 13 (Original): The method of claim 1 further including sequencing
14 synchronized frames output from the server to the client to provide for ordered
15 playback of the synchronized frames to a user at the client.

1 Claim 14 (Currently amended): A method of packaging synchronized
2 frames of three-dimensional motion data and time-based data where each frame
3 includes one or more channels of data in a system in which synchronized frames of
4 three-dimensional motion data and time-based data are transmitted by a server over
5 a network to a client, the method comprising:

6 storing a last data value for each channel in each synchronized frame of
7 three-dimensional motion data and time-based data transmitted over the network;

8 retrieving new synchronized frames of three-dimensional motion data and
9 time-based data for transmission over the network; and

10 packaging and transmitting ~~through separate streams~~ over the network only
11 data for channels having changed data values, wherein the client receives separate
12 streams of the three-dimensional motion data and the time-based data.
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14 Claim 15 (Original): The method of claim 14 further including transmitting
15 a descriptor packet at a predetermined interval over the network, the descriptor
16 packet including channel descriptors for each channel in the synchronized frames.
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1 Claim 16 (Currently amended): An apparatus resident on a server for
2 synchronizing asynchronous time-based and three-dimensional motion data in a
3 system in which the time-based data and three-dimensional motion data are
4 transmitted by the server over a network to a client, the apparatus comprising:

5 a data retriever for retrieving a time-based data stream and a three-
6 dimensional motion data stream at the server, each of the streams comprising
7 frames of data;

8 a data stream synchronizer for buffering one of the time-based data stream
9 and the three-dimensional motion stream to produce two streams having
10 synchronized frames, wherein the two streams are ~~multicast~~ received separate
11 of one another at the client; and

12 a packetizer for packaging synchronized frames of three-dimensional
13 motion data and time-based data for use at the client for playback of synchronized
14 three-dimensional motion data and time-based data to a user.

15
16 Claim 17 (Currently amended): The apparatus of claim 16 further
17 including a multicaster for multicasting the synchronized three-dimensional motion
18 data and time-based data to clients ~~couple~~ coupled to the network.

1 Claim 18 (Original): The apparatus of claim 16 wherein the packetizer
2 includes a storage device and a comparator, the storage device for storing data
3 values last transmitted over the network for each channel in each of the
4 synchronized frames, the comparator for comparing data values for new frames
5 with the data values stored in the storage device, the packetizer only packaging for
6 transmission to the client channel data for channels having changed data values as
7 determined by the comparator.

8
9 Claim 19 (Previously presented): A method for playing back time-based
10 and motion capture data that has been synchronized and received as separate
11 streams of data comprising:

12 mapping the motion capture data received in one or more of the separate
13 streams to control the movement of a virtual figure in a scene displayed at a client;
14 and

15 playing back in synchronization with movement of the virtual figure the
16 time-based data received in one or more of the separate streams.

1 Claim 20 (Currently amended): A method of synchronizing asynchronous
2 three-dimensional motion data and audio data at a server computer in a system in
3 which the three-dimensional motion data and the audio data are transmitted
4 ~~through separate streams~~ by the server computer to one or more clients, the clients
5 providing a real time output of synchronized motion and audio data, the method
6 comprising:

7 retrieving an audio stream ~~of the separate streams~~ including voice data and
8 a three-dimensional motion data stream ~~of the separate streams~~ including one or
9 more motion data channels at the server, each stream including frames of data;

10 calculating a delay through the server for a frame of data on each of the
11 streams;

12 calculating a difference between the delay for the audio stream and the
13 three-dimensional motion data stream to determine which of the two streams is
14 faster;

15 variably buffering a faster of the streams to synchronize the audio stream
16 and the three-dimensional motion data stream resulting in two output streams
17 having synchronized data frames;

18 packaging the synchronized data frames;

19 multicasting the synchronized data frames to one or more clients over a
20 network; and

21 at each client computer receiving as separate streams the three-dimensional
22 motion data and the audio data, using the synchronized data frames for
23 synchronous playback of the audio and three-dimensional motion data for display
24 to a user.
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1 Claim 21 (Previously presented): The method of claim 1 wherein the
2 motion capture data is sensor data.

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4 Claim 22 (Previously presented): The method of claim 14 wherein the
5 three-dimensional motion data is sensor data.

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7 Claim 23 (Previously presented): The method of claim 16 wherein the
8 three-dimensional motion data is sensor data.

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10 Claim 24 (Previously presented): The method of claim 19 wherein the
11 motion capture data is sensor data.

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13 Claim 25 (Previously presented): The method of claim 20 wherein the
14 three-dimensional motion data is sensor data.

1 Claim 26 (Currently amended): A method of synchronizing asynchronous
2 time-based and motion capture data in a system in which the time-based data and
3 the motion capture data are transmitted by a server over a network to a client, the
4 method comprising:

5 retrieving a time-based data stream and a motion capture data stream at the
6 server, each stream comprising frames of data;

7 variably buffering one of the time-based data stream and the motion capture
8 data stream at the server to produce two streams having time synchronized frames,
9 wherein the two streams are received separately at the client; and

10 using the time synchronized frames at the client for playback of
11 synchronized motion capture data and time-based data to a user.

1 Claim 27 (Currently amended): A method of packaging time
2 synchronized frames of three-dimensional motion data and time-based data where
3 each frame includes one or more channels of data in a system in which
4 synchronized frames of three-dimensional motion data and time-based data are
5 transmitted by a server over a network to a client, the method comprising:

6 storing a last data value for each channel in each time synchronized frame
7 of three-dimensional motion data and time-based data transmitted over the
8 network;

9 retrieving new time synchronized frames of three-dimensional motion data
10 and time-based data for transmission over the network; and

11 packaging and transmitting over the network only data for channels having
12 changed data values[[]]; and

13 receiving at the client, separate streams of the three-dimensional motion
14 data and time-based data.

1 Claim 28 (Currently amended): An apparatus resident on a server for
2 synchronizing asynchronous time-based and three-dimensional motion data in a
3 system in which the time-based data and the three-dimensional motion data are
4 transmitted by the server over a network to a client, the apparatus comprising:

5 a data retriever for retrieving a time-based data stream and a three-
6 dimensional motion data stream at the server, each of the streams comprising
7 frames of data;

8 a data stream synchronizer for buffering one of the time-based data stream
9 and the three-dimensional motion stream to produce two streams having time
10 synchronized frames; and

11 a packetizer for packaging synchronized frames of the three-dimensional
12 motion data and the time-based data for use at the client for playback of
13 synchronized three-dimensional motion data and time-based data to a user[.]; and
14 receiving as separate streams the three-dimensional motion data and the
15 time-based data.

16
17 Claim 29 (Currently amended): A method for playing back time-based
18 data and motion capture data that has been time synchronized comprising:

19 receiving as separate streams the time-based and motion capture data;

20 mapping the motion capture data to control the movement of a virtual figure
21 in a scene displayed at a client; and

22 playing back in synchronization with movement of the virtual figure the
23 time-based data.
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1 Claim 30 (Currently amended): A method of time synchronizing
2 asynchronous three-dimensional motion data and audio data at a server computer
3 in a system in which the three-dimensional motion data and the audio data are
4 transmitted by the server computer to one or more clients, the clients providing a
5 real time output of synchronized motion and audio data, the method comprising:

6 retrieving an audio stream including voice data and a three-dimensional
7 motion data stream including one or more motion data channels at the server, each
8 stream including frames of data;

9 calculating a delay through the server for a frame of data on each of the
10 streams;

11 calculating a difference between the delay for the audio stream and the
12 three-dimensional motion data stream to determine which of the two streams is
13 faster;

14 variably buffering a faster of the streams to synchronize the audio stream
15 and the three-dimensional motion data stream resulting in two output streams
16 having time synchronized data frames;

17 packaging the synchronized data frames;

18 ~~multicasting~~ receiving the synchronized data frames as separate streams at
19 [[to]] one or more client[[s]] computer over a network; and

20 at each client computer, using the synchronized data frames for
21 synchronous playback of the audio data and the three-dimensional motion data for
22 display to a user.